
A New Species and New Combinations of Boraginaceae from China

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ABSTRACT. *Cynoglossum macrocalycinum* from Xinjiang, China, is described as new, and its distinguishing characters from the other species of the genus are given. The new combinations *C. furcatum* var. *villosulum* and *Hackelia difformis* are proposed.

Cynoglossum officinale L., a species widespread in Europe and western Asia, was reported for China by various workers, including Liu (1989). Liu's description of the species indicated that a different species, though superficially resembling *C. officinale*, is involved. A specimen identified under this name was loaned from Jiangsu Institute of Botany (NAS) during the revision of Boraginaceae for the *Flora of China*. The specimen is herein described as a new species.

***Cynoglossum macrocalycinum* Riedl, sp. nov.**

TYPE: China. Sinkiang [Xinjiang], Shawan County, Ziniquan, Ning jiahe, hill slope, 1,750 m, T. Zhou s.n. (holotype, NAS).

Species nova imprimis foliis caulinis maximis, mediis et superioribus tantum notis 13–14 cm longis, 3–3.5 cm latis, pedicellis sub anthesi 1 cm, postea usque ad 3 cm longis, calycibus floriferis 8–9 mm longis, laciniis fere ad basin liberis, marginibus sese tegentibus, ovatis vel ovato-oblongis, obtusissimis, subpatule dense albo-pilosis imprimis, post florendum ad 10–12 mm elongatis, latitudine inaequalibus lobo latissimo usque ad 5 mm lato, angustissimo, quam omnes ceteri multo angustiore, 2.5 mm lato, corolla campanulata, calycem paulo tantum superante, 9–9.5 mm lata, obscure reticulato-venosa, fornicibus magnis subquadratis quam antherae multo majoribus insignis.

Herbs stout, at least 50–60 cm high, lower parts missing. Stem with few branches in leaf axils, densely covered with white patent or slightly reflexed hairs. Upper middle leaves oblong-lanceolate, 13–14 cm long, 3–3.5 cm wide, sessile, base attenuate, apex subacute; uppermost leaves ovate- to oblong-lanceolate, 5.5–11 cm long, 2–3 cm wide, base often abruptly contracted or rounded, apex acute to subobtuse; leaves of lateral branches lanceolate to linear-lanceolate, (3–)6–9 cm long, 0.8–1.8 cm wide, lowermost indistinctly petiolate; leaf indumentum of \pm patent, curved hairs of different length. Cymes

short, loose at last, without bracts. Pedicel ca. 1 cm at flowering, to 3 cm in fruit, densely covered with white hairs, straight at first, little recurved later along upper third. Calyx 8–9 mm long in flower, sepals free to base, imbricately covering each other along margins, ovate to ovate-oblong, broadly obtuse, elongated to 10–12 mm after flowering, unequal in width, widest to 5 mm, narrowest ca. 2.5 mm, often also shorter than others, all subexplanate, densely covered with patent white hairs. Corolla campanulate, to 1 mm longer than calyx, 9–9.5 mm wide, dark purple, with reticulate veins; tube ca. 5 mm long, equaling limb; lobes to 2 mm long, very broadly rounded. Faucal appendages large, subquadrate, much bigger than anthers. Ovary remaining very small well after anthesis. Style short, included in corolla. Mature nutlets not seen.

Due to the lack of mature nutlets, the exact relationships of *Cynoglossum macrocalycinum* cannot be established. It is readily distinguished from *C. officinale* and the other Chinese species by large calyces strongly accrescent after flowering, broadly obtuse unequal calyx lobes with overlapping margins, distinctly veined corollas only slightly longer than calyx, and nutlets attaining their full size very late. This combination of characters is unique in the genus. The corolla venation of *C. macrocalycinum* resembles that of *C. creticum* Miller, but the latter species has a smaller (3–5 mm long) flowering calyx that becomes reflexed in fruit and with equal oblong lobes. In addition to *C. macrocalycinum*, there are two other species of *Cynoglossum* from Xinjiang, *C. divaricatum* Stephan and *C. viridiflorum* Pallas ex Lehmann, both belonging to subgenus *Cynoglossum*. It is most likely that the new species also belongs to this group.

***Cynoglossum furcatum* Wallich ex Roxburgh var. *villosulum* (Nakai) Riedl, comb. et stat. nov.**
Basionym: *Cynoglossum villosulum* Nakai, Bot. Mag. (Tokyo) 37: 6. 1923. TYPE: not designated.

The inflorescence in variety *villosulum* is less branched and more elongated than in the type variety, the leaves are short pubescent and usually

also larger, and the glochids are less abundant on the dorsal surface of the nutlets.

Cynoglossum furcatum is the correct name for what has been erroneously called *C. zeylanicum* by various authors who followed Brand (1921). True *C. zeylanicum* (Vahl) Thunberg has one or few, terminal, elongated, upright branches of the inflorescence, instead of many divaricate branches. In this respect it is more similar to variety *villosulum*, but the leaf hairs are shorter and more rough, and the plant and leaves are usually much smaller. *Cynoglossum javanicum* Thunberg is probably conspecific with *C. zeylanicum*, and the species does not grow north of Sri Lanka. The case will be dealt with at more length in connection with a revision of *Cynoglossum* subg. *Paracynoglossum* now in progress.

Hackelia difformis (Y. S. Lian & J. Q. Wang)
Riedl, comb. nov. Basionym: *Eritrichium difforme* Y. S. Lian & C. Q. Wang, Acta Phytotax. Sin. 18: 515. 1980. TYPE: China. Sichuan: Leibo, T. T. Yü 3842 (holotype, HP).

Lian & Wang (1980, 1989) argued that there are not sufficient differences between *Eritrichium* and *Hackelia* to keep the latter as a separate genus. However, the most important character separating the two, shape of the gynobase, was not mentioned in their argument. The gynobase in *Eritrichium* is cushion-shaped and 1 mm high at best, whereas in *Hackelia* it is distinctly conical and 2–3 mm high. Furthermore, *Hackelia* species are taller as a rule, many have basal leaves with cordate to truncate

base, and all have deflexed fruiting pedicels, though such pedicels are found in some species of *Eritrichium*. The marginal prickles of nutlets are less reliable in differentiating between the two genera. In *Hackelia* they always are anchorlike at the apex, but in *Eritrichium* they may be acute or even broadly obtuse and flat as a whole, and only sometimes are they mixed with glochids. *Hackelia difformis* is a typical representative of the genus, and it bears close resemblance to many Pacific American species, where *Hackelia* is centered. In my opinion, the two genera represent different evolutionary lines. It is very likely that other species listed under *Eritrichium* from China will have to be transferred to *Hackelia* in the future.

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